Populus deltoides - (Salix amygdaloides) / Salix exigua Woodland

COMMON NAME	Eastern Cottonwood - (Peachleaf Willow) / Sandbar Willow Woodland
SYNONYM	Cottonwood - Peach-Leaf Willow Floodplain Woodland
PHYSIOGNOMIC CLASS	Woodland (II)
PHYSIOGNOMIC SUBCLASS	Deciduous woodland (II.B)
PHYSIOGNOMIC GROUP	Cold-deciduous woodland (II.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (II.B.2.N)
FORMATION	Temporarily flooded cold-deciduous woodland (II.B.2.N.b)
ALLIANCE	POPULUS DELTOIDES TEMPORARILY FLOODED WOODLAND ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM Terrestrial

RANGE

Badlands National Park

Cottonwood - willow woodlands are distributed in the floodplains of the White and Cheyenne Rivers, smaller creeks and drainages, and around ponds and reservoirs throughout Badlands NP.

Globally

This community is found in southern Manitoba, North Dakota, South Dakota, central and western Nebraska, western Kansas, eastern Colorado, and Oklahoma. It may occur in Texas and New Mexico.

ENVIRONMENTAL DESCRIPTION

Badlands National Park

Cottonwood - willow woodlands occupy river and creek floodplains, pond and reservoir margins, seeps and springs in mesic draws, and seeps and springs that occur along the edge of sandhill complexes.

Globally

This community is found along the banks of streams and rivers, usually within 100 feet of the stream channel. It develops on newly deposited alluvium. The soils are predominantly sand, although silt, clay, or loam may be present. Soils are poorly developed. The water table fluctuates with the level of the river or stream and flooding is common, especially in the spring. In Wyoming, height above the stream channel varies from 1.5 to 10 feet (Jones and Walford 1995).

MOST ABUNDANT SPECIES

Badlands National Park

Stratum	Species
Tree	*Fraxinus pennsylvanica*, *Juniperus virginiana*, *Salix amygdaloides*, *Populus deltoides*
Shrub	*Rhus trilobata*, *Shepherdia argentea*, *Symphoricarpos occidentalis*
Herbaceous	*Nassella viridula*, *Poa pratensis*, *Pascopyrum smithii*

Globally

Stratum	Species
Tree canopy	*Populus deltoides, Salix amygdaloides*
Short shrub	*Salix exigua, Symphoricarpos occidentalis*
Forb	*Ambrosia psilostachya, Glycyrrhiza lepidota, Helianthus petiolaris*
Fern	*Equisetum arvense*
Graminoid	*Carex emoryi, Carex lanuginosa, Pascopyrum smithii, Poa pratensis, Spartina pectinata, Sporobolus cryptandrus*

CHARACTERISTIC SPECIES

Badlands National Park

Populus deltoides, *Salix amygdaloides*, *Symphoricarpos occidentalis*, *Pascopyrum smithii*, *Poa pratensis*

Globally

Populus deltoides, Salix amygdaloides, Salix exigua

OTHER NOTABLE SPECIES

Globally

Stratum	Species
Forb	*Cirsium arvense, Euphorbia esula, Taraxacum officinale*
Graminoid	*Bromus tectorum, Poa pratensis*

VEGETATION DESCRIPTION

Badlands National Park

Stands of cottonwood - peachleaf willow woodland have a range of canopy closure, depending on stand age and landscape position. Those stands sampled ranged from 25-75% cover for trees and understory grasses, but shrubs generally contributed less than 5% cover. Cottonwood (*Populus deltoides*) is the dominant tree, with peachleaf willow (*Salix amygdaloides*) a frequent associate. Older trees are generally further out on the floodplain, and tend to have large canopy openings. Older stands also tend to be invaded by other tree species including green ash (*Fraxinus pennsylvanica*) and eastern red cedar (*Juniperus virginiana*). Western wheatgrass (*Pascopyrum smithii*), Kentucky bluegrass (*Poa pratensis*), and green needlegrass (*Nassella viridula*) are the common herbaceous species, and western snowberry (*Symphoricarpos occidentalis*) is the most common shrub species present.

Globally

This community has an open canopy 6-12 m tall and typically dominated by *Populus deltoides* and *Salix amygdaloides*, though *Salix amygdaloides* can be absent in some examples of this community. *Fraxinus pennsylvanica* may be present, especially on the upland side of this community, and *Elaeagnus angustifolia* or *Juniperus* spp. may invade some sites. This woodland community has closely spaced shrubs and small trees. *Salix exigua* is usually more abundant along the streamside margins of this community and where the canopy of taller trees is most open, which may occur following a scouring (heavy flood) event. This shrub grows to 2-5 m tall. Other shorter shrubs that can be found are *Symphoricarpos occidentalis* and *Toxicodendron rydbergii*. Graminoids adapted to mesic sites dominate the understory of most sites, the most common species including *Carex emoryi, C. pellita, Elymus canadensis, Hordeum jubatum, Muhlenbergia racemosa, Pascopyrum smithii, Poa pratensis*, and *Spartina pectinata*. Forbs that are frequently abundant in relatively undisturbed sites include *Equisetum arvense* and *Glycyrrhiza lepidota*. Flooding often creates open patches in the herbaceous layer that are available for colonization by nearby species. The floristic composition of these patches is greatly affected by the species that are near and can invade the disturbed areas. Because of the high permeability of the sandy floodplain soils, species typical of upland prairie may invade in addition to annual forbs typical of disturbed sites. Widely distributed species that are adapted to these sites include *Ambrosia psilostachya, Artemisia campestris* ssp. *caudata, A. ludoviciana, Calamovilfa longifolia, Cenchrus longispinus, Euphorbia serpyllifolia, E. esula, Grindelia squarrosa, Helianthus petiolaris, Heterotheca villosa, Lippia lanceolata, Opuntia macrorhiza, Poa pratensis*, and *Sporobolus cryptandrus*. These sites are prone to invasion by exotic grasses and forbs, the most widely established being *Agrostis stolonifera, Bromus tectorum, Cirsium arvense, Kochia scoparia, Melilotus* spp., *Taraxacum officinale*, and *Tragopogon dubius*.

CONSERVATION RANK G3G4. In the absence of regular flooding, many sites will undergo succession to later seral stages. Many sites are overgrazed and invaded by exotic woody and herbaceous species.

DATABASE CODE CEGL000659

MAP UNITS The cottonwood - peachleaf willow woodland type is mapped under map class 41 (Eastern cottonwood - (Peachleaf willow) / Sandbar willow Woodland) on the Badlands NP vegetation map.

SIMILAR ASSOCIATIONS

Populus deltoides / Panicum virgatum - Schizachyrium scoparium Woodland (may be a subtype of this community whose character is maintained by winter grazing.)

COMMENTS

Badlands National Park

Little riparian woodland of any type is present within Badlands NP; stands are restricted to drainages, ponds and reservoirs. The cottonwood - peachleaf willow type was interpreted wherever a stand occurred, often below the minimum mapping unit of 0.5 hectares, because of its importance as a habitat. In order to better understand this woodland in the region, sampling was conducted off-park on both the Cheyenne and White Rivers. A good representation of this woodland type has been obtained following field sampling efforts.

Globally

Populus deltoides/ Panicum virgatum - Schizachyrium scoparium Woodland (CEGL001454) may be a subtype of this community whose character is maintained by winter grazing. Flooding and scouring by sand and ice are common in most examples of this community. During floods, erosion and deposition of material may occur. Drought stress affects shallow-rooted plants when the water table drops. This community is a seral community and requires the creation of new sandbars, mudflats, and other barren stretches for its continued existence. Bellah and Hulbert (1974) found that this community existed for only about 20 years before succession altered the forest to another community. Johnson (1994) believed that alteration of the hydrology of the Platte River in Nebraska has reduced the frequency of flooding. Thus, early successional communities such as this one were not being reestablished as quickly as they were being replaced by later seral communities. This type is subject to, and maintained by, periodic flooding. Thirty years post-flood, this type will likely transition into a grassland type, as the cottonwood and willow species do not regenerate (Bellah and Hulbert 1974).

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